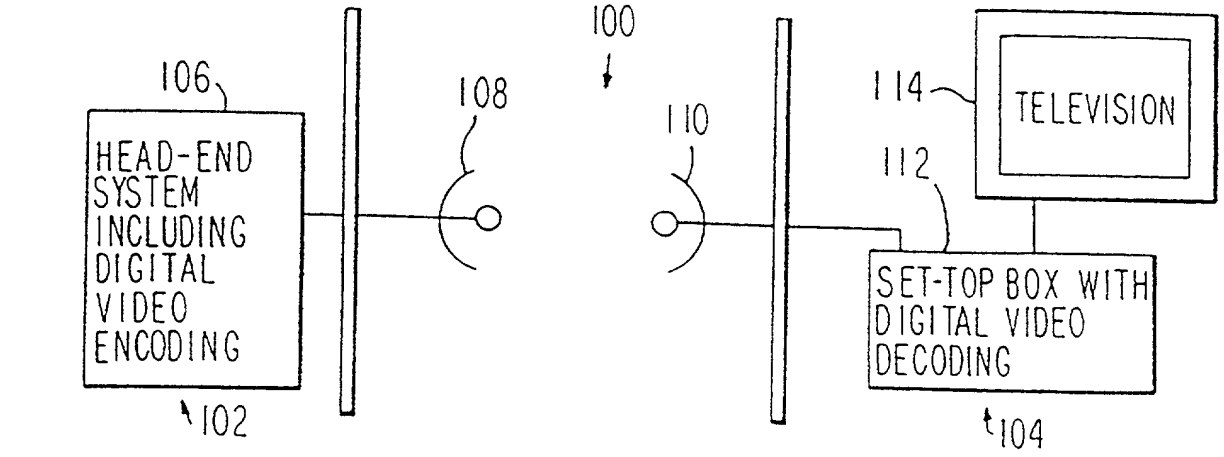
FIG. 1


100
106
HEAD-END SYSTEM INCLUDING DIGITAL VIDEO ENCODING
102
108
110
114
TELEVISION
112
SET-TOP BOX WITH DIGITAL VIDEO DECODING
104

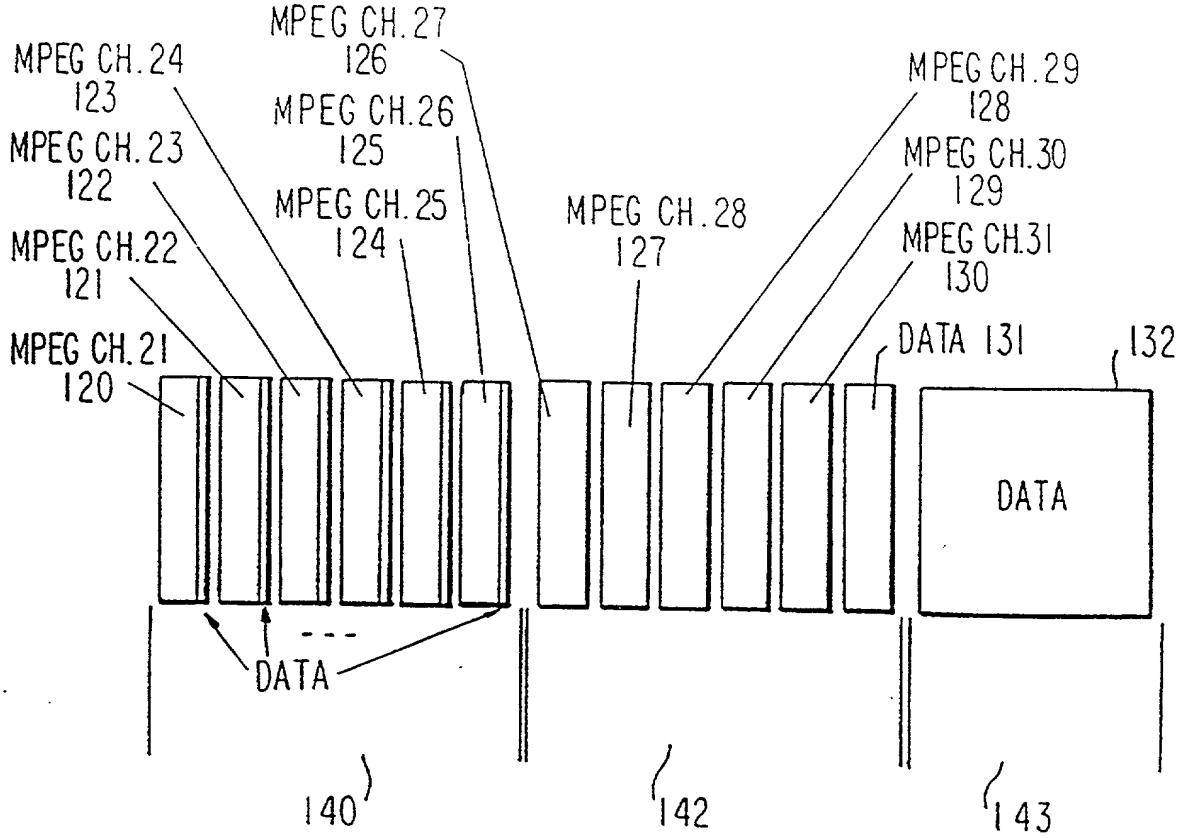

MPEG CH. 24
123
MPEG CH. 23
122
MPEG CH. 22
121
MPEG CH. 21
120
MPEG CH. 27
126
MPEG CH. 26
125
MPEG CH. 25
124
MPEG CH. 28
127
MPEG CH. 29
128
MPEG CH. 30
129
MPEG CH. 31
130
DATA 131
132
DATA
DATA
140
142
143

FIG. 2

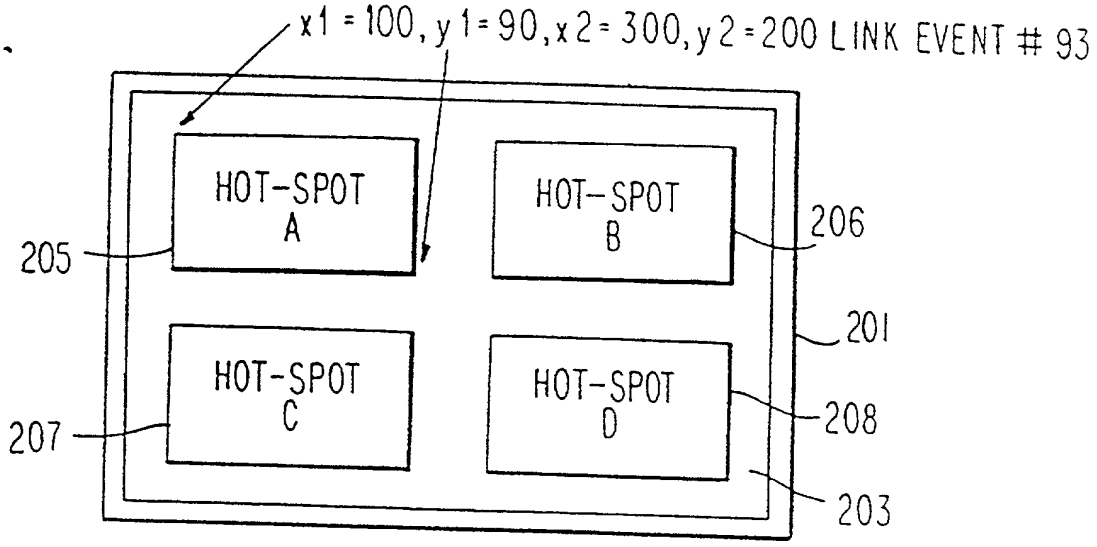

x1 = 100, y1 = 90, x2 = 300, y2 = 200 LINK EVENT # 93
HOT-SPOT A
HOT-SPOT B
HOT-SPOT C
HOT-SPOT D
205
206
207
208
201
203

FIG. 3

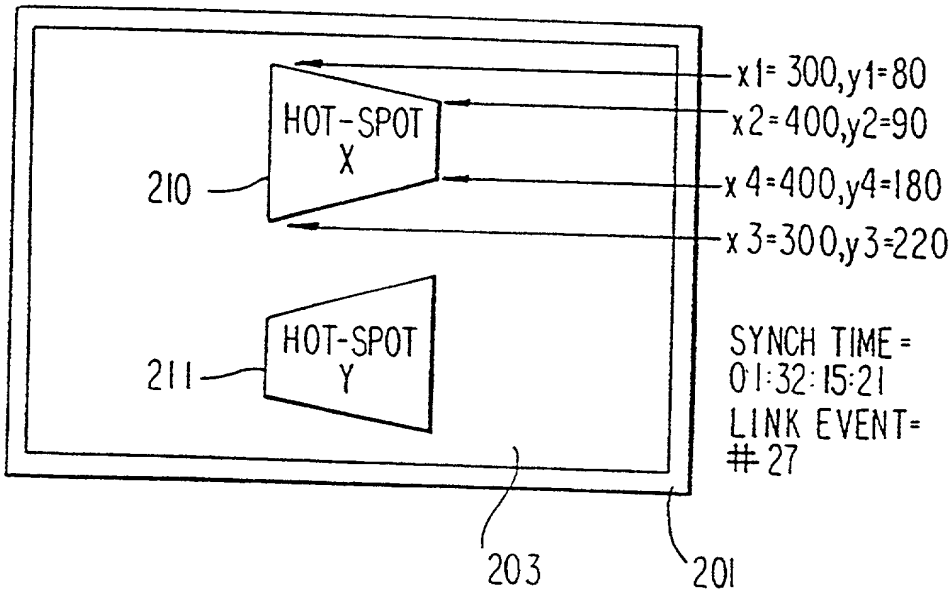

x1= 300, y1=80
x2=400, y2=90
x4=400, y4=180
x3=300, y3=220
HOT-SPOT X
HOT-SPOT Y
210
211
SYNCH TIME = 01:32:15:21
LINK EVENT = #27
203
201

FIG. 4

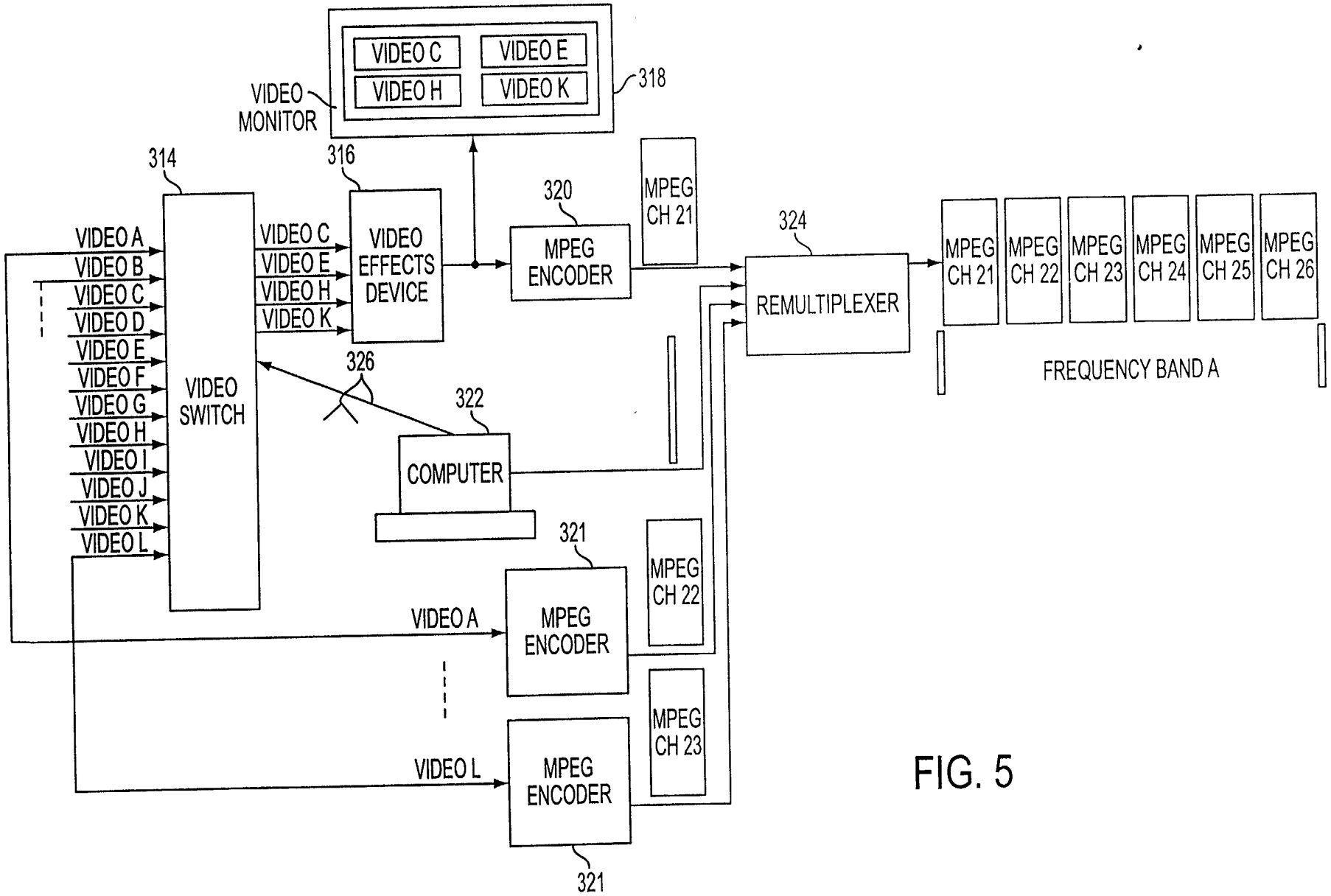

VIDEO C
VIDEO E
VIDEO H
VIDEO K
VIDEO MONITOR
318
314
316
320
MPEG CH 21
324
VIDEO A
VIDEO B
VIDEO C
VIDEO D
VIDEO E
VIDEO F
VIDEO G
VIDEO H
VIDEO I
VIDEO J
VIDEO K
VIDEO L
VIDEO SWITCH
VIDEO C
VIDEO E
VIDEO H
VIDEO K
VIDEO EFFECTS DEVICE
MPEG ENCODER
REMULTIPLEXER
MPEG CH 21
MPEG CH 22
MPEG CH 23
MPEG CH 24
MPEG CH 25
MPEG CH 26
FREQUENCY BAND A
326
322
COMPUTER
321
MPEG CH 22
VIDEO A
MPEG ENCODER
MPEG CH 23
VIDEO L
MPEG ENCODER
321

FIG. 5

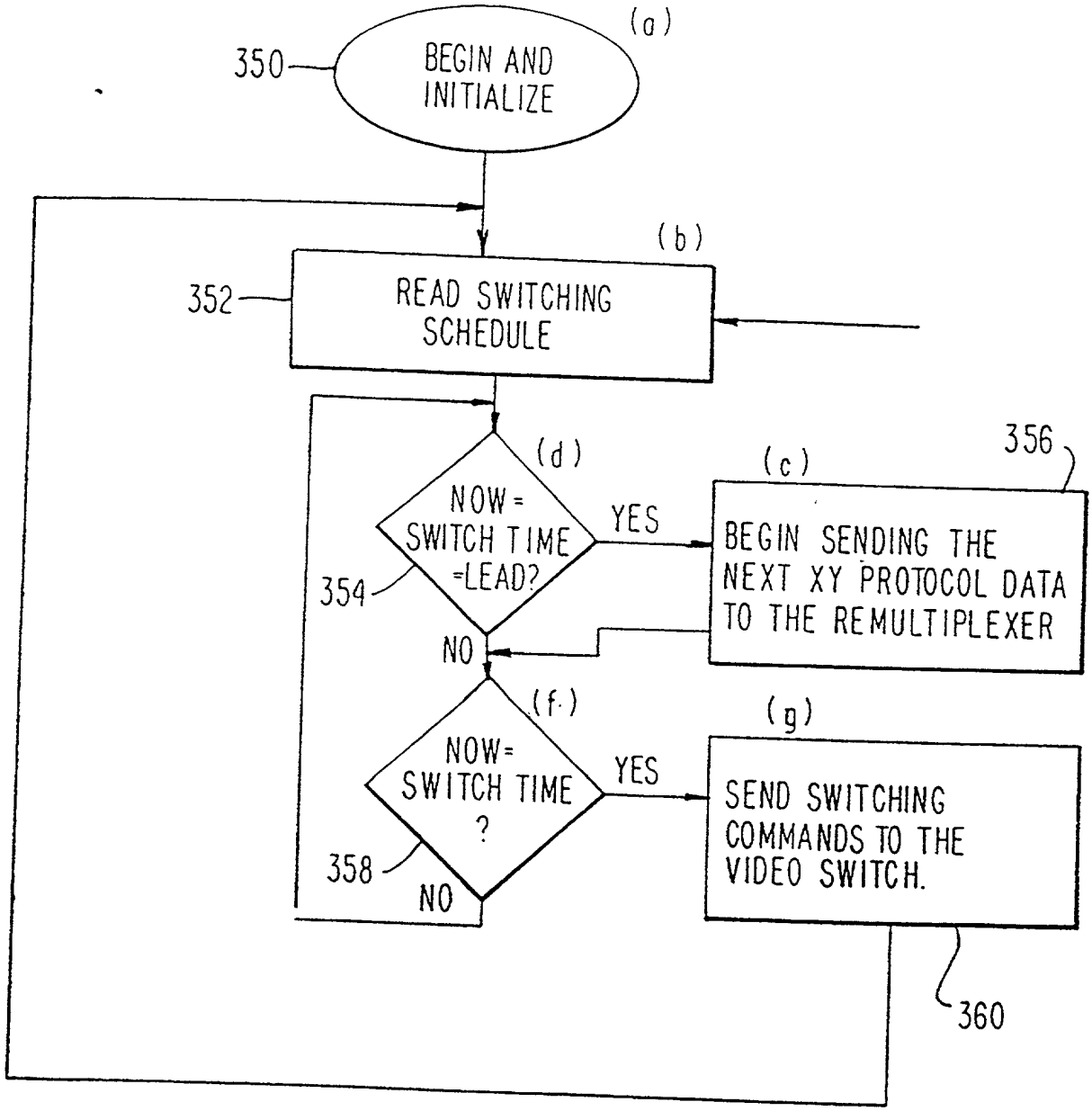

(a)
350
BEGIN AND INITIALIZE
(b)
352
READ SWITCHING SCHEDULE
(d)
NOW = SWITCH TIME =LEAD?
354
YES
(c)
356
BEGIN SENDING THE NEXT XY PROTOCOL DATA TO THE REMULTIPLEXER
NO
(f)
NOW = SWITCH TIME ?
358
YES
(g)
SEND SWITCHING COMMANDS TO THE VIDEO SWITCH.
NO
360

FIG. 6

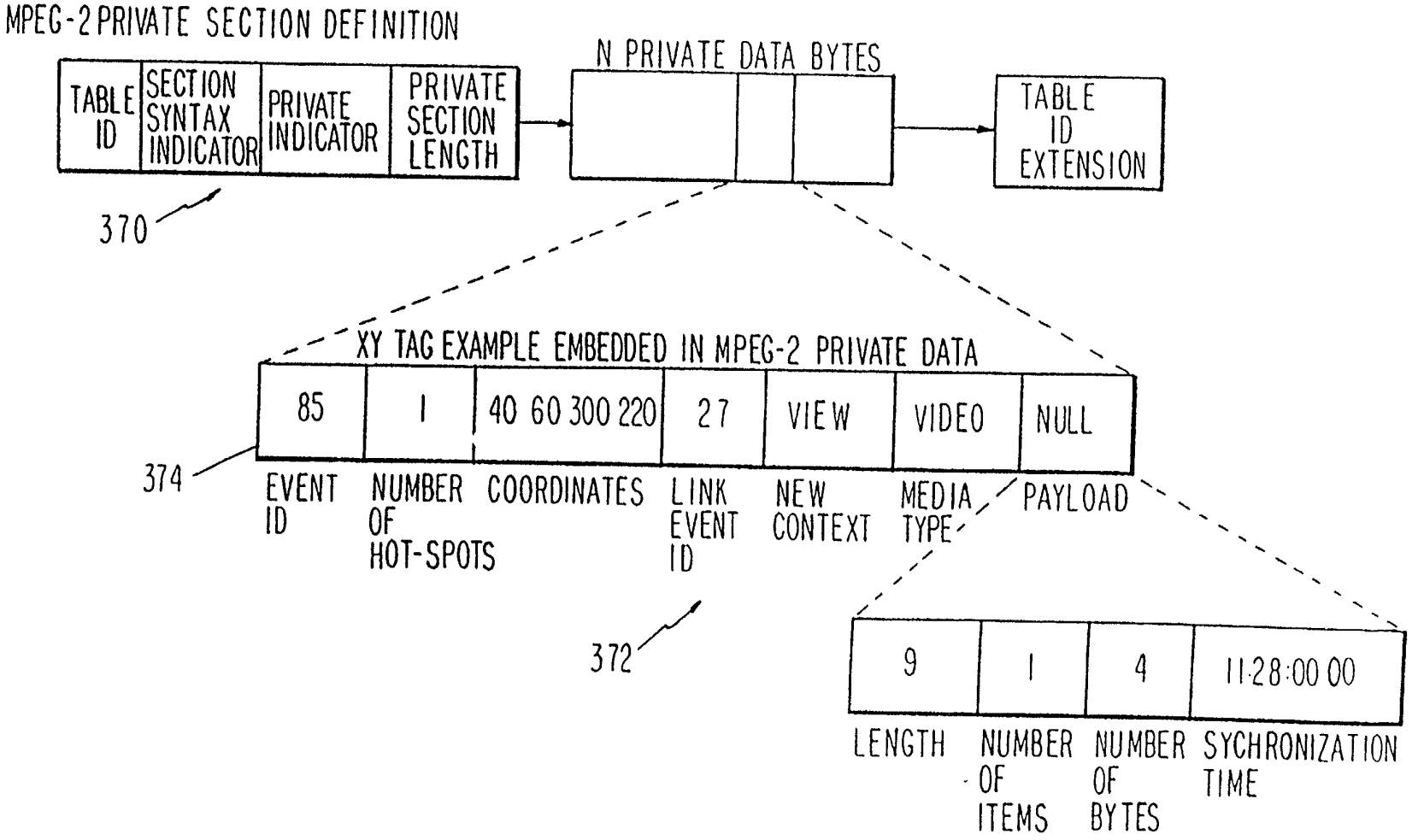
SWITCHING SCHEDULE

TIME = 11:28:00.00
VIDEO SWITCH C
X1=40, Y1=60, X2=300, Y2=220
LINK EVENT = #27
VIDEO SWITCH E
X1=340, Y1=60, X2=500, Y2=220
LINK EVENT = #29
VIDEO SWITCH H
X1=40, Y1=260, X2=300, Y2=420
LINK EVENT = #47
VIDEO SWITCH K
X1=340, Y1=260, X2=500, Y2=420
LINK EVENT = #42

TIME = 11:30:00:00
VIDEO SWITCH D
X1=40, Y1=60, X2=300, Y2=220
LINK EVENT = #28
VIDEO SWITCH F
X1=340, Y1=60, X2=500, Y2=220
LINK EVENT = #30
VIDEO SWITCH I
X1=40, Y1=260, X2=300, Y2=420
LINK EVENT = #48
VIDEO SWITCH L
X1=340, Y1=260, =X2=500, Y2=420
LINK EVENT = #43

FIG. 7

FIG. 8


MPEG-2 PRIVATE SECTION DEFINITION
TABLE ID
SECTION SYNTAX INDICATOR
PRIVATE INDICATOR
PRIVATE SECTION LENGTH
N PRIVATE DATA BYTES
TABLE ID EXTENSION
370
XY TAG EXAMPLE EMBEDDED IN MPEG-2 PRIVATE DATA
85
1
40 60 300 220
27
VIEW
VIDEO
NULL
374
EVENT ID
NUMBER OF HOT-SPOTS
COORDINATES
LINK EVENT ID
NEW CONTEXT
MEDIA TYPE
PAYLOAD
372
9
1
4
11:28:00 00
LENGTH
NUMBER OF ITEMS
NUMBER OF BYTES
SYCHRONIZATION TIME

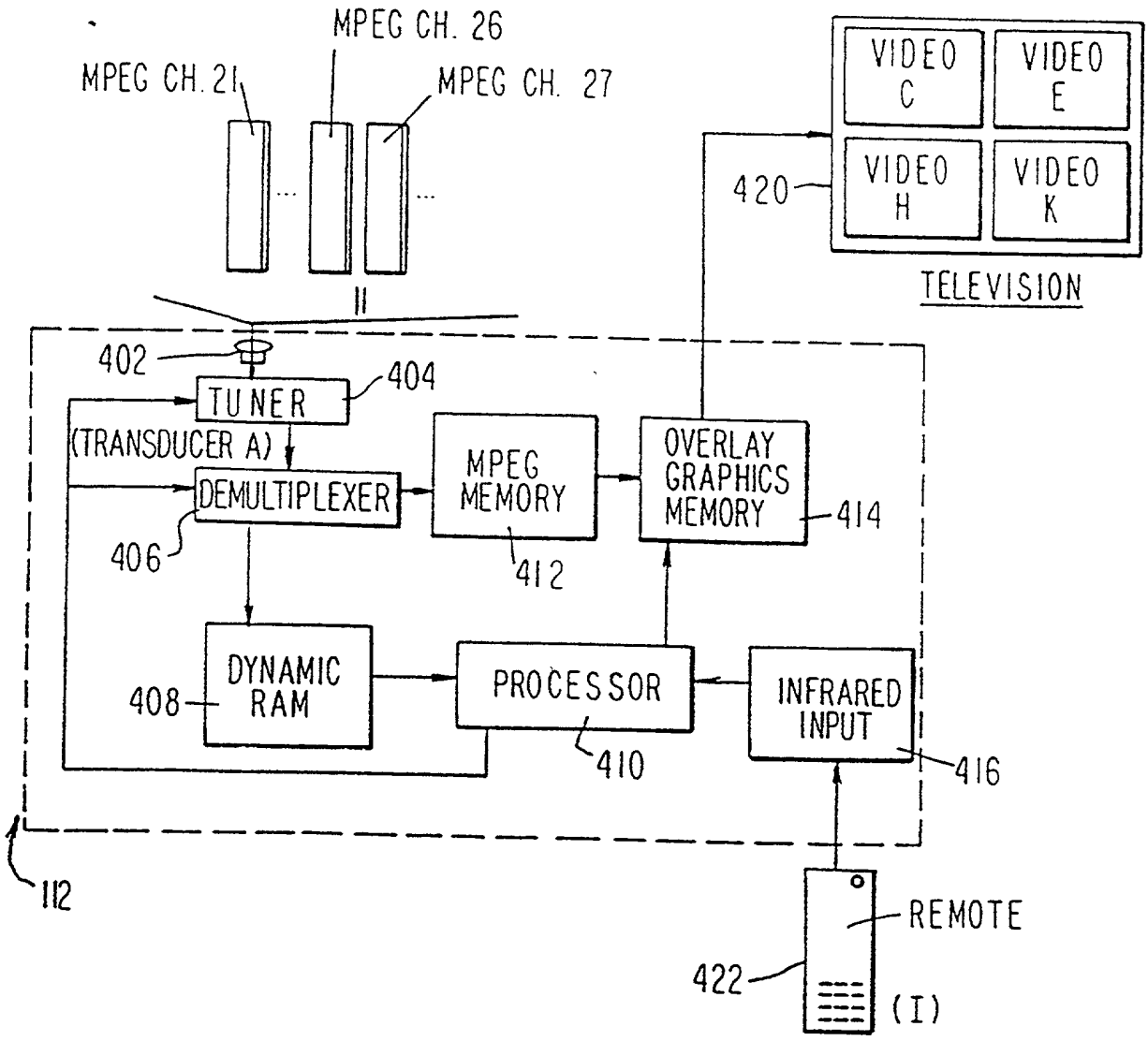

MPEG CH. 26
MPEG CH. 21
MPEG CH. 27
VIDEO C
VIDEO E
VIDEO H
VIDEO K
420
TELEVISION
402
TUNER
404
(TRANSDUCER A)
DEMULTIPLEXER
406
MPEG MEMORY
412
OVERLAY GRAPHICS MEMORY
414
DYNAMIC RAM
408
PROCESSOR
410
INFRARED INPUT
416
112
REMOTE
422
(I)

FIG. 9

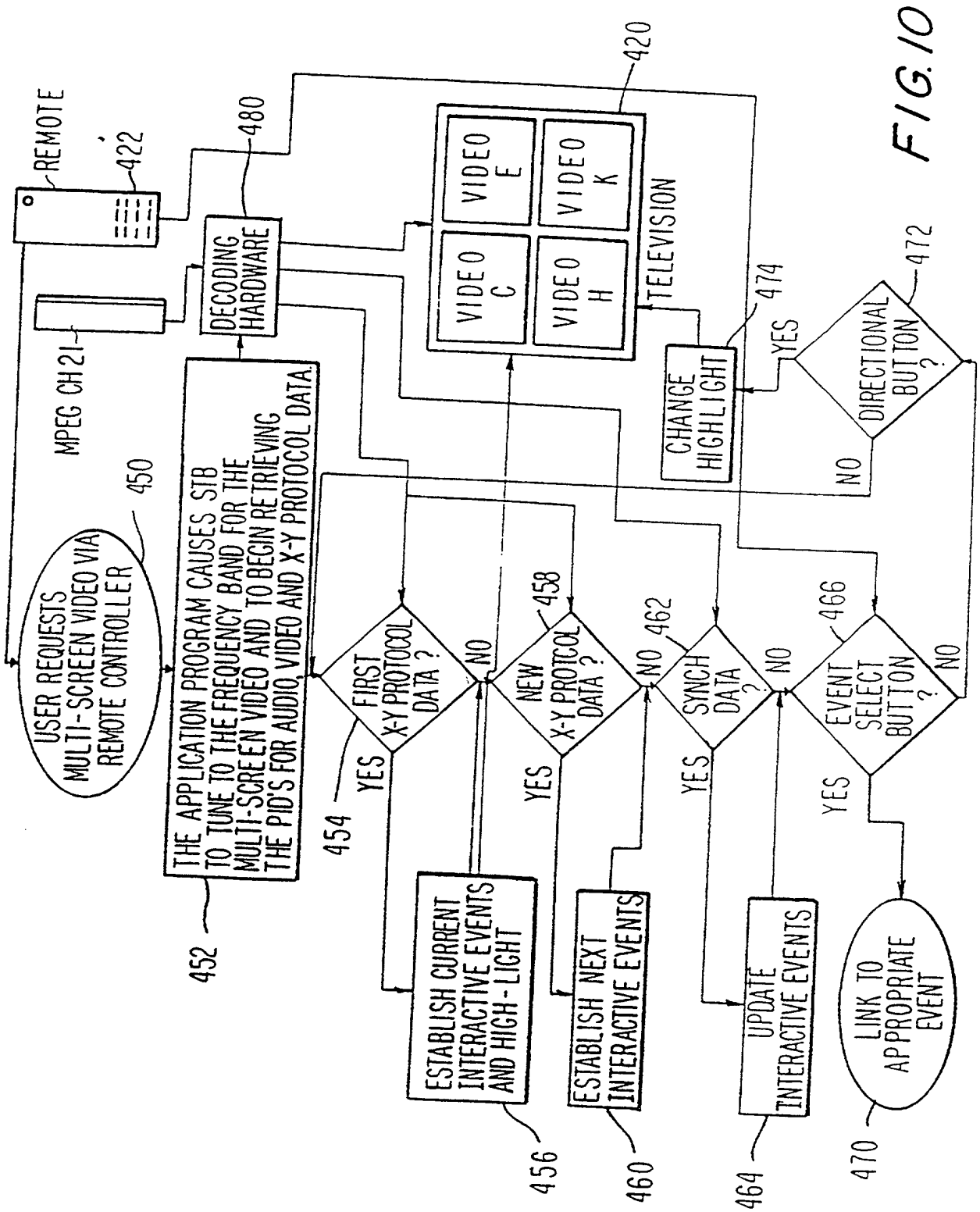

REMOTE
422
480
420
MPEG CH 21
DECODING HARDWARE
VIDEO C
VIDEO E
VIDEO H
VIDEO K
TELEVISION
USER REQUESTS MULTI-SCREEN VIDEO VIA REMOTE CONTROLLER
450
THE APPLICATION PROGRAM CAUSES STB TO TUNE TO THE FREQUENCY BAND FOR THE MULTI-SCREEN VIDEO AND TO BEGIN RETRIEVING THE PID'S FOR AUDIO, VIDEO AND X-Y PROTOCOL DATA.
452
FIRST X-Y PROTOCOL DATA ?
454
YES
NO
ESTABLISH CURRENT INTERACTIVE EVENTS AND HIGH-LIGHT
456
NEW X-Y PROTOCOL DATA ?
458
YES
NO
ESTABLISH NEXT INTERACTIVE EVENTS
460
SYNCH DATA ?
462
YES
NO
UPDATE INTERACTIVE EVENTS
464
EVENT SELECT BUTTON ?
466
YES
NO
LINK TO APPROPRIATE EVENT
470
CHANGE HIGHLIGHT
474
YES
DIRECTIONAL BUTTON ?
472
NO

FIG. 10